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THREE IMPORTANT aspects of successful crop production in Iowa are the varieties of crop seeds available, quality of the seed and seed supplies. Here's the outlook on these aspects for 1971:

- **Corn acreage may be limited this year because of seed corn supplies. If we plant the same acreage as in 1970, we will need almost perfect distribution of the available seed. Seed quality will be lower than farmers have learned to expect, so this might be a good year to begin reading seed tags.**
- **We have the largest supply of certified soybean seed on record—enough to plant 45 percent of the 1971 acreage.**
- **Supply of grain sorghum seed will be tight for two reasons: unfavorable weather during harvest which lowered grain sorghum production; demand is greater than usual since grain sorghum is being used as a substitute for corn in some blight-infested areas.**
- **There should be an adequate supply of oats, grass and legume seed.**

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CORN

Many good corn hybrids are available to Iowa farmers. Choosing the right hybrid for 1971 planting will be more perplexing than usual. In addition to choosing a hybrid with a high yield potential and other good agronomic characteristics, a farmer must also look at a hybrid's "cytoplasm". Seed corn with N cytoplasm is tolerant to Race T of Southern corn leaf blight. Seed with T cytoplasm is susceptible to Race T. Blends are a mixture of seed with N and T cytoplasm. Seed corn will be labeled with the percent T cytoplasm seed in the bag. For example, T cytoplasm seed will be labeled 100 percent T; N cytoplasm — 0 percent T; and blends with the percent T in the mixture. Probably all of the three types of seed will be needed to plant the Corn Belt crop in 1971. The type of cytoplasm in seed used will influence management decisions.

The annual Iowa corn yield test bulletin can help you in choosing a hybrid to fit your needs. The bulletin is available from your local ISU Extension Service office.

GRAIN SORGHUM

Grain sorghums have a place on many Iowa farms, particularly

when used in a cropping system with corn and soybeans. Second year corn could be eliminated, thus avoiding the corn rootworm problem. And grain sorghum has another important advantage—it is not attacked by Southern corn leaf blight. Grain sorghum is more likely to compete successfully with corn in western and southern Iowa than in other parts of the state.

Before planting grain sorghum, be sure suitable harvesting, drying, storage and marketing facilities are available. A report on the performance of grain sorghum hybrids is available at your local extension office.

SOYBEANS

In choosing a soybean variety for top yield, select one that reaches maturity at least 10 days before the average date of killing frost in your area. Varieties suggested below by areas will do this when planted at the normal dates.

Soybeans may be used as a replant crop. In this case, you can choose from a wide selection of varieties which may be planted later than normal and still mature in the remaining frost-free period. Yields decrease about 1 percent for each day planting is delayed after May 31. Write to the department of agronomy at Iowa State University for special suggestions.

Northern Iowa

Traverse—A week earlier than Chippewa 64 and yields 1 bushel less. Can be used when planting has been delayed beyond June 1.

Chippewa 64—A week earlier than Hark, but yields less.

Wirth—One day later than Chippewa 64. Best adapted to parts of the northern 2 tiers of counties where it outyields Chippewa 64 by 1½ bushels per acre. Similar in appearance to Chippewa 64 with purple flowers, brown pubescence and yellow seed with a black hilum.

Hark—Best adapted across northern 2 to 3 tiers of counties. Can be used farther south when early harvest is desired. Five days later than Chippewa 64 and yields about 4 bushels (12 percent) more. Subject to chlorosis in high pH soils.

Rampage — Similar in maturity to Hark but yields less in Iowa. More resistant to iron chlorosis than Hark. Similar in appearance to Chippewa 64 and Wirth with purple flowers, brown pubescence and yellow seed with a black hilum.

Corsoy—Best adapted to northern 6 tiers of counties. Similar to Hark in maturity and outyields it by 1½ bushels. Corsoy has less lodging resistance than Hark and Amsoy. Moderate resistance to iron chlorosis.

Amsoy—Yields 3 to 5 bushels more than Harosoy and Hawkeye and matures midway between them. Better lodging resistance than Hawkeye or Harosoy. Resistant to iron chlorosis.

Amsoy 71—Available to certified seed growers for planting in 1971. Amsoy 71 is resistant to phytophthora rot while Amsoy is susceptible. The two varieties are similar in yield and appearance. Amsoy 71 will replace Amsoy when adequate seed supplies are available.

Central Iowa

Corsoy and *Amsoy*—see descriptions under northern Iowa.

Beeson—Outyields Amsoy and Corsoy by more than 2 bushels per acre. Has better lodging resistance than Amsoy or Corsoy; purple flowers, gray pubescence and yellow seed with an imperfect black hilum. Moderately resistant to iron chlorosis.

Southern Iowa

Amsoy, Amsoy 71 and *Beeson*—See central Iowa

Wayne—Matures a week earlier than Clark and outyields it by about 4 bushels per acre. About 14 days later than Amsoy and yields about 1 bushel more. Susceptible to iron chlorosis.

Calland—Best adapted to southern 3 tiers of counties. Matures 2 days later than Wayne and outyields Wayne by more than 2 bushels per acre in southern Iowa. Is resistant to iron chlorosis on high pH soils. Has brown pubescence, yellow seed with black hilum and a plant shape similar to Wayne.

Clark—About 1 week later in maturity than Wayne; stands well.

Cutler—Two days later than Clark 63, and 5 days later than Calland. Yields 2 bushels less than Calland in southern Iowa. Has purple flowers, gray pubescence and yellow seed with a black hilum.

Special Varieties

Provar and *Protana*—Inferior in yield by 2 or more bushels but with 2 to 3 percent higher protein than Corsoy and Amsoy. Both should be grown only for contract production due to inferior yielding ability.

Disoy, Magna and *Prize*—Large seeded varieties with inferior yield to small seeded varieties such as Corsoy and Amsoy. Should be grown only for contract production.

SMALL GRAINS

Oat Varieties

The relative performance of oat varieties is summarized in Table 1. The 1970 growing season approximated a long-term average, being some 10 days earlier than the 1969 season. Moisture was generally adequate for oat development except in western Iowa. Crown rust was more severe in 1970 than it has been since 1957, especially in central Iowa. Stem rust was plentiful north of U. S. Highway 30; however, it came in late so only crown rust contributed to a reduction in yield.

The 1970 growing season showed again that rust can cause losses in susceptible varieties. Changes in the race population of the crown rust fungus have occurred recently so that some varieties that were rated resistant were found to be susceptible. The Iowa multilines not only have the best crown rust resistance at this time, but they are most likely to remain resistant for a period of time.

Barley Varieties

Larker and *Dickson*—Both have good malting qualities and are mid-late in maturity. Dickson has good straw strength and resistance to leaf blotch diseases. Larker has outstanding grain plumpness, but is more likely to lodge. Both are resistant to stem rust, but susceptible to leaf rust and loose smut.

Primus and *Primus* II—New early maturing varieties that show considerable heat tolerance. Medium-stiff and medium height straw. Malting quality not yet established. Resistant to stem rust, but susceptible to leaf rust, loose smut and leaf blotches.

Phytophthora Resistant Varieties

Chippewa 64, *Amsoy* 71, *Beeson, Clark* 63 and *Calland*—These varieties are resistant to Phytophthora root rot. The disease is not a serious problem in Iowa.

Wheat Varieties

Winter wheat varieties generally outyield spring ones and have given the most consistent performance in southern and southwest sections and along the Missouri River bottomlands.

Winter Wheat

Gage—High yielding, bearded, early maturing, with short, stiff straw and moderate winter hardiness. Combines good resistance to leaf and stem rust and to loose smut. Moderate resistance to soil-borne mosaic and Hessian fly. Acceptable milling and baking qualities.

Shawnee—A selection from Ottawa that is more uniform. Has better milling and baking qualities. High yielding, bearded, brown chaff type. Has mid-short, stiff straw, medium-early matur-

ity and moderate winter hardiness. Resistant to soil-borne mosaic and Hessian fly, but only moderate resistance to rusts.

Scout and *Scout* 66—High yielding, bearded, early maturing, with only fair straw-strength and winter hardiness. Resistant to stem rust and loose smut. Susceptible to leaf rust and soil-borne mosaic. Good milling and baking qualities.

Spring-Sown Wheat

Chris, Manitou and *Polk*—All are high yielding and have excellent resistance to leaf and stem rust. Polk has very plump grain and all three have good milling and baking qualities.

Flax Varieties

Flax, like barley, is grown largely in northwestern Iowa. The following varieties performed well in yield trials and are resistant to prevalent races of rust.

Redwood 65, *Summit, Windom, Norstar, Noralta, Nored* and *Linnott*—All are from early to medium in maturity and at least moderately resistant to wilt. None are completely resistant to pasmo, but Norstar and Nored have good tolerance to this disease.

FORAGES

Alfalfa Varieties

Alfalfa is Iowa's most valuable forage crop and is grown on 1.8 million acres. High yields on Iowa soils depend on adequate amounts of lime, phosphorus and potassium, plus a favorable distribution of rainfall throughout the growing season. Early cutting, when plants start to bloom, helps insure high quality forage. Use varieties resistant to bacterial wilt to maintain good stands capable of high level performance.

Vernal—Synthetic variety developed in Wisconsin and well adapted to all parts of Iowa. High yielding with a high degree of wilt resistance and winter hardiness.

522—A 20-clone synthetic developed from Vernal. Has high level of winter hardiness and wilt resistance. Slightly taller with higher frequency of yellow and light colored flowers than Vernal. Similar to Vernal in forage yield.

525—Developed from Vernal for better seed production. Has high level of winter hardiness and wilt resistance. Equal to Vernal in forage yield.

Progress—Synthetic developed from Vernal for better seed production. Similar to Vernal in yielding ability and wilt resistance.

Titan—An 11-clone synthetic derived from Vernal. Has shown good winter hardiness and yielded well in Iowa trials.

DeKalb 123—A 7-clone synthetic of Vernal origin. Has approximately 1 percent yellow flowers. Comparable to Vernal in growth habit and forage yield.

DeKalb 153—A synthetic tracing to Vernal, Ranger, Buffalo and Cody. Rather tall in growth habit, flowers blue to purple, no variegation. Yield similar to Vernal.

WL-202—Winter-hardy and wilt resistant synthetic developed from selections from Vernal and Narragansett. Performance similar to Vernal.

WL-210—A 10-clone synthetic; has yielded well in Iowa trials.

Tempo — Developed from 4-parent clones in an uncontrolled double cross. Resistant to bacterial wilt and leaf spot and hardier than the Flemish types. Has yielded well in Iowa trials.

Scout—An 8-clone synthetic developed from winter-hardy varieties. Selected for resistance to common leafspot, leafhopper and wilt. Has yielded well in Iowa trials.

Iroquois—Developed in New York from Narragansett and Vernal crosses, backcrossed to Narragansett and selected for wilt resistance and high yield.

Saranac—New York variety developed from crosses of A225 and Flemish varieties backcrossed to Flemish type to attain rapid regrowth habit. Has wilt resistance.

Warrior—Modified DuPuits type with greater winter hardiness and wilt resistance.

Apex—A synthetic of Flemish type origin, with greater winter hardiness than DuPuits and some wilt resistance.

Dawson—Nebraska variety resistant to pea aphid and spotted aphid. Similar to Ranger in winter hardiness and resistance to bacterial wilt. Has produced less forage than Vernal in Iowa.

Cody—Kansas variety having resistance to alfalfa spotted aphid. Similar to Buffalo in yield but not sufficiently hardy for northern Iowa.

Buffalo—Wilt resistant variety developed in Kansas from common alfalfa. Not sufficiently hardy for northern Iowa.

DuPuits—French variety having rapid regrowth and early maturity. Susceptible to bacterial wilt.

FD-100—Improved strain of the Flemish type. Has good color, blooms early and has rapid regrowth. Susceptible to bacterial wilt.

New Varieties—Several new varieties, developed in breeding programs of public and private agencies, appear promising for Iowa conditions. Some of these are N5-113, N5-114, WL-214, PAT30, Atr55, N102, Brand, MK-82 and TX202 Kanza, Team, Weevlchek, and WL215 show some resistance to the alfalfa weevil.

Red Clover Varieties

Red clover acreage in Iowa has declined steadily during the past 15 to 20 years. Basically, this is because farmers recognize the greater yield potential of alfalfa which can be produced more efficiently. However, many farmers in eastern Iowa still favor red clover for short rotations, and approximately 800,000 acres are harvested annually in the state.

Emerson—An Iowa selection from a well adapted strain grown in Marion County. Has been superior in forage yields for many years.

Kenland—Developed in Kentucky for resistance to southern anthracnose. Has shown superior performance in forage production over a period of years.

Lakeland—Wisconsin variety resistant to northern anthracnose and downy mildew. Will give superior yields in seasons when northern anthracnose is prevalent.

Pennscott—Variety from Pennsylvania similar in performance to Kenland under Iowa conditions.

Dollard—Canadian variety resistant to northern anthracnose. Superior to Kenland in yield if this disease is prevalent.

LaSalle—Canadian variety developed by compositing Dollard and Ottawa strains. Performs well in Iowa.

Common—Strains of common red clover, especially well adapted farm strains grown for a number of generations in Iowa or other Corn Belt areas, usually produce good yields. Idaho and southern Canada seed is also considered satisfactory.

Sweetclover

For many years sweetclover was used extensively as a green manure crop. Changes in cropping systems, increased use of commercial fertilizer on corn, and the advent of the sweetclover weevil have caused sharp declines in Iowa sweetclover acreage.

Madrid—Biennial yellow. Produces excellent yields of organic matter and nitrogen in the first year of growth.

Ladino Clover

Ladino clover is the giant, productive type of white clover. It is best suited for rotation pastures on fertile soils where moisture is plentiful. It is particularly good for hog and poultry pastures. Because of its bloat potential, ladino clover must be used with caution for grazing sheep and cattle.

Merit—Synthetic variety developed by the Iowa State University Agricultural Experiment Station from certified seed stocks of California and Oregon ladino. Merit is superior in winter hardiness, summer drought tolerance, and forage yield.

Birdsfoot Trefoil

Birdsfoot trefoil is a deep-rooted winter-hardy, perennial legume especially in permanent and long rotation pastures. Gaining popularity in southern Iowa, it increases productivity of blue-

grass pastures. Also used in rotation pastures with orchardgrass and bromegrass.

Empire—Semi-prostrate in growing habit and winter-hardy in most of Iowa. Will withstand continuous grazing much better than upright-type varieties.

Dawn—Missouri variety developed from Empire. Selected for resistance to crown rot. Yield is equal or superior to Empire.

New Varieties—Several new synthetic varieties are being developed for greater seedling vigor, winter hardiness, high yield of forage and crown rot resistance. Introductions from Russia have provided promising material. Further evaluation is necessary before any of these will be available.

Bromegrass

Bromegrass is a widely adapted, hardy grass for good soils. Does well when grown with a legume, especially alfalfa. Stands without legumes can be stepped up considerably in seed and forage production by applying 60 to 120 pounds of nitrogen per acre. Adapted varieties—all similar in performance—are:

Achenbach, Fischer, Lincoln and *Southland*—These widely grown southern types are tall, leafy, and good seed producers under proper management. Southland tends to be superior in spring vigor.

Baylor, Blair and *Sac*—Three new varieties that have yielded well in recent tests.

Orchardgrass

Orchardgrass is a vigorous grass, less winter hardy than smooth brome. Easy to establish, it is best suited for pasture because of rapid recovery after grazing or mowing. It persists under a wide range of conditions, and with good management, is high in palatability and nutritive value.

Sterling—A mid-early variety superior in forage and seed production and in winterhardiness, drought tolerance, and ease of stand establishment.

Dayton and *Napier*—Two new varieties similar to Sterling in winter hardiness and forage yield. Dayton heads about the same time as Sterling; Napier heads a day or two later. Both varieties are somewhat more resistant to leaf diseases than Sterling with Dayton being the most resistant.

Potomac—A mid-early variety similar to common orchardgrass in performance; good in aftermath recovery and improved resistance to rust; less winterhardy than Sterling.

Common—Seed from mid-Atlantic or southern Corn Belt states is good in general performance, mid-early in heading.

TABLE 1. Agronomic characteristics and crown rust reactions of oat varieties eligible for certification in 1970.

Variety	Yield	Straw	Test Weight	Reaction to Crown Rust*
Early Maturing				
Clintford	Medium	Strong	High	S
Jaycee	Medium	Medium	Medium	S
Multiline E69	Medium	Strong	High	R
Multiline E70	Medium	Medium	High	R
Neal	Medium	Strong	Low	S
Nodaway	Medium	Medium	Medium	S
Nodaway 71	Medium	Medium	Medium	S
Pettis	High	Weak	High	S
Taylor	Medium	Weak	Low	S
Midseason				
Bonkee	Medium	Weak	Low	S
Cherokee	Low	Weak	Low	S
Froker	High	Strong	Low	MR-S
Garland	Medium	Medium	Low	S
Holden	High	Medium	Low	S
M1922	Medium	Medium	Low	S
M3306	Medium	Weak	High	S
Multiline M69	Medium	Medium	Medium	R
Multiline M70	Medium	Medium	Medium	R
O'Brien	Medium	Medium	Medium	S
Otter	High	Medium	Low	S
Stormont	Medium	Strong	Low	S
Tippecanoe	Medium	Strong	Medium	S
Tyler	Medium	Strong	Low	S
Late Maturing				
Orbit	Medium	Weak	Low	S
Portal	High	Strong	Medium	MR

*R=Resistant; MR=Moderately Resistant; S=Susceptible. This is the field reaction to crown rust races 264B, 295, 326 and 327.

Frode—A medium-late variety, lower in forage yield and markedly less winterhardy than Sterling. Because of its later maturity, Frode was higher in protein percentage and digestibility than Sterling when both varieties were harvested at the same time in early June.

Danish—Seed imported from Denmark is poor in winter hardiness, medium in maturity and low in forage yield.

Reed Canarygrass

Reed canarygrass is an adapted, vigorous, highly productive grass. Does well on poorly drained and upland soils and tolerates both heat and drought. Best suited for pasture because of rapid recovery after grazing and good growth during mid-summer.

Tall Fescue

Tall fescue is especially good for early spring, late fall and early winter grazing. It is best adapted in the southern half of the state.

Alta and Kentucky 31—Both varieties have performed well in Iowa.

Sudangrass, Sorghum-Sudan Crosses

Sudangrass and sorghum-sudangrass crosses can provide summer forage. As warm season grasses, they grow rapidly under adequate soil moisture and fertility conditions during June, July and August. These annual grasses can complement cool season perennial grasses which decline in productivity in midsummer. They can be used for pasture, green chop, hay or silage. However, they appear to be best suited for pasture or green chop.

To minimize the danger of prussic acid poisoning, use a variety low in prussic acid potential. Avoid grazing until the stand is 25 inches or more high. Maintain a good fertility balance in the soil and avoid grazing young shoots or stands stunted by drought. After a frost, wait until the frosted growth has dried out completely before grazing.

Forage Sorghums

Numerous forage sorghum varieties are available. They vary in maturity, height, standability, leafiness, percent grain, forage yield, and nutritive value. Although best suited for silage, forage sorghums can be stockpiled for late fall or winter pasture.

Since forage sorghums are generally higher in prussic acid potential than sorghum x sundangrass hybrids or sudangrasses, they may not be safe for pasture, green chop or silage until after heading. Consider using a male sterile hybrid to avoid a problem with volunteer plants in subsequent years. Although the better forage sorghum varieties will usually outyield corn for silage, the feeding value is 5 to 10 percent lower.